

BOOK REVIEW

Radioactive and Stable Isotope Tracers in Biomedicine,

Robert R. Wolfe,

Wiley-Liss, 605 Third Avenue, New York, NY 10158-0012, 1992, \$88.

Book review by R. E. Serfass,

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The author of this book, Robert R. Wolfe, is well known and highly experienced in tracer methodology applied to biomedical research. He has been involved in the development and application of these methods for the past 16 years at Shriners Burns Institute of the University of Texas Medical Branch at Galveston, where he is chief of the metabolism unit. His expressed goal in writing this book is to provide sufficient specific information to enable the reader to conduct successfully a tracer study of almost any metabolic function in human subjects. In this reviewer's opinion, Dr. Wolfe succeeds admirably almost without exception.

This book is described as a sequel to Dr. Wolfe's 1984 treatise on tracers in metabolic research, but knowledge of the content of its predecessor is not required for an understanding of the current work. The content is lucidly described and logically developed, from the introduction of fundamental theoretical aspects through the considerations pertinent to administration of tracers and onward to analytical instrumentation, procedures, and interpretation of data. Several topics (e.g., compartmental modeling techniques) are

included such that this sequel is a substantial expansion on, as well as an update of, the previous work.

The book consists of 18 chapters, two appendices, and an index. Ten of the chapters deal with introductions to terminology, instrumentation (with emphasis on isotope ratio mass spectrometry and gas chromatography/mass spectrometry, and methodologic considerations. Subsequently, as much emphasis is given to eight chapters of specific applications to measurements of substrate oxidation, glucose metabolism, total energy expenditure, body composition, lipid and urea kinetics, amino acids, and protein metabolism. Applications of compounds labeled with isotopes of hydrogen, carbon, nitrogen, or oxygen are discussed almost exclusively. Sufficient citations to exemplary recent literature are included with each chapter, but some topics could benefit by more references to alternative perspectives. The appendices are collections of very useful laboratory methods, selected electron impact and chemical ionization spectra, fragment structures, and natural isotopomer distributions. This book contains a wealth of information, so it hardly seems fair to ask for more. Nonetheless, this reader desired further specifics on components of mass spectrometric instrumentation and thought that a compilation of sources of supplies and reference materials would be desirable in a book of this kind.

This book will be useful as a text for those who are interested in learning the methods and results of metabolic tracer experiments and to mass spectrometrists who are unfamiliar with these potential applications of their instrumentation. The comprehensive coverage and contemporary perspective are valuable contributions to the scientific literature.